

# Can I get a coffee – but hold the coffee, please

Compound Foods has raised \$4.5M in seed funding, giving it \$5.3M in total funding to-date, for its synthetic biology-based technology that makes coffee without coffee beans.

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Backers of the firm include Lowercarbon Capital, Petri Bio and Maple VC. We've seen the rise of meatless meat products, and fishless fish – but what about beanless coffee? Compound Food's novel approach aims to recreate the molecular structure of traditionally produced coffee, however with fewer resources and less environmental impacts.

We've previously pointed out the climate change and its impacts, such as lower rainfall, are causing short-term disruptions to regional coffee production, and having a knock-on effect on global supply. In the face of climate-driven decreasing crop yields, efforts to create a synthetic replica could foreshadow the future of coffee in the long-term.

## Climate concerns

Coffee sits among the most climate-vulnerable crops, being susceptible to extreme weather conditions such as drought and frost, as well as rising temperatures. Other climate-related impacts such as pollinator loss from collapses in bee and butterfly populations are also undermining global coffee production, and affecting other major crops including soybean, cashews and strawberries. Limited supplies are also hiking up the costs of the crop, with

prices reaching an almost seven year-high earlier this year.

It's worth noting around 60% of wild coffee varieties are under threat of extinction from climate change, deforestation, pests and the spread of fungal pathogens, as a recent [\*study\*](#) found. Arabica – the world's most popular coffee strain – has also entered the IUCN Red List as an endangered species. Given wild species are crucial for the [\*development\*](#) of future coffee crops, this could risk the longevity of global coffee production.

## Grounds for success

The eco-conscious start-up boasts strong environmental credentials for its production method, which [\*generates\*](#) one-tenth of the carbon emissions of traditional methods, and requires a tenth of water used conventionally (roughly 140 litres across the production chain for a single cup). Coffee is the fifth-highest [\*polluting\*](#) crop, and large-scale conventional plantations are often linked to habitat destruction, deforestation and pesticide overuse.

## How does it work?

The novel approach relies on [\*fermentation technology\*](#), a method quickly gaining traction in the alternative protein sector. Using sustainably grown microbes, the firm mimics conventional processes used at a coffee farm, including roasting and brewing. Compound Foods is working to develop a variety of flavours and aromas, as well as different caffeine levels.

The adoption of similar molecular-based food technology is gaining traction. Seattle-based [\*Atomo Coffee\*](#), for example, is developing a “coffeeless coffee” from upcycled ingredients such as watermelon seeds and seed husks, while German company QOA is utilising precision fermentation to create a chocolate [\*alternative\*](#) without using cocoa.

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